

CHAPTER 3

FORECASTS

CHAPTER 3 - FORECASTS

In preparing a comprehensive statewide plan for the public use airports in the Nebraska system, it is important to have a general understanding of recent and anticipated trends in the aviation industry as a whole. When these trends are considered, it is important to review factors that could impact the use of commercial service and general aviation. Some trends in the aviation industry will undoubtedly have a greater impact on Nebraska than others; and, in fact, it is possible that some trends that are anticipated and discussed in this chapter may have no pronounced impact on the State's aviation environment.

Trends in the commercial airline industry could substantially impact air service in Nebraska, particularly as they relate to how the State's demand for commercial airline travel will be served in the future. Trends in general aviation are also important to consider since almost every airport in the Nebraska system, even the air carrier airports, accommodates some segment of general aviation activity. Furthermore, the vast majority of Nebraska airports support only general aviation aircraft operations. Having an understanding of the general aviation industry is important to considering the future demand for this component of the industry. Included in this examination of general aviation trends will be a discussion of changing patterns in the business use of general aviation aircraft.

This chapter documents trends in each of the various components of aviation identified above. Trends presented in this chapter are generally for the U.S. as a whole, and they are intended to provide a general frame of reference for the reader of this report. The trends analysis sets the stage for an understanding of how aviation activity in Nebraska compares to aviation in the country, and it establishes a basis for predicting how aviation may be expected to grow and change in the future. Having this frame of reference is essential to identifying viable alternatives for improving Nebraska's airport system.

Historical trends in total statewide based aircraft, operations, and enplanements are also provided in this chapter. This presentation helps to show how demand has changed or shifted throughout the State. For airport-specific data, please consult that airport's master plan or airport layout plan (ALP).

RECENT COMMERCIAL TRENDS

The airline industry operates in a perpetual state of adjustment and change. During the last 20 years, the United States has experienced unprecedented expansion of air carrier capacity and large investments by carriers to control the flow of traffic through networks of hub airports. In various markets, there have been documented skirmishes between the major carriers and new entrants. Where competition prevailed, air passengers reaped the rewards of low fares. At single carrier hubs and local airports, passengers paid, on average, much higher fares. Then, in the late 1980s, the carriers lost millions of dollars. Those losses had a profound effect on the way airlines operated. Some of the most dramatic changes that occurred included the sudden and complete shutdown of several hub operations and the demise of several flagship carriers, notably Eastern Airlines, Braniff, and Pan Am.

The 1990s ushered in a new period of mergers, global alliances, and joint marketing agreements, as well as domestic alliances between major and regional carriers. In addition, there have been significant structural changes in the way airlines conduct business. The airlines have examined every aspect of their operations to reduce costs. A "shifting downstream" of service to smaller communities marked the mid-1990s. The regional carriers, with lower labor costs, came into their own. Shorter haul service to hub airports was turned over to the regional carriers, and they provided high frequency, turboprop service to and from their

major carrier affiliate's hub airport. For many communities, the turboprops were never fully accepted. As the domestic system solidified, the major carriers have re-entered this segment of the airlines business by acquisition of the regional carriers and by replacement of turboprops with regional jets. This process has left smaller cities with few options for air service.

Four major factors that have helped to shape the development of today's industry are as follows:

- ❑ A robust, but cyclical economy – trends in commercial passenger boardings, when compared to the U.S. Gross Domestic Product, indicate a direct relationship between periods of GDP growth and decline to periods of increases and decreases in the total number of U.S. commercial passenger boardings. These trends clearly indicate that the airline industry and commercial passenger traffic are significantly impacted by upturns and downturns in the U.S. economy. Since the early 1990s, the steady growth in the U.S. economy has resulted in a lengthy period of significant increases in total commercial passenger traffic.
- ❑ Over-expansion of the airline industry in the late 1980s – The over-expansion of the airline industry that was experienced in the late 1980s was a major factor that caused airlines to lose over \$13 billion during the early 1990s, the largest losses ever experienced. As a result of these losses, airlines were forced to re-evaluate their systems and make the following changes:
 - Major adjustments to their route structures, concentrating on the most profitable routes,
 - Increase seating capacity and maximize frequencies to achieve higher load factors,
 - Eliminate secondary connecting hubs and introduce point-to-point service in the larger markets,
 - Focus on the development of strategic marketing alliances with regional carriers in the U.S. and other airlines abroad, and
 - Rationalize aircraft fleets that, on average, offered lower operating costs.
- ❑ Widespread adoption of similar, successful strategies by each of the major carriers – The 3- to 5-year long-term planning horizons under which most airlines operate allow them to observe and quickly emulate the successful strategies of their competitors. This copycat approach to providing air service has resulted in several episodic waves of strategic changes by the airlines. The following are examples of these types of actions that have been taken by most major airlines:
 - Development of hub fortresses to capture and control traffic flows,
 - Initiation of frequent flyer programs,
 - Emulation of Southwest Airlines,
 - Code-sharing alliances with regional carriers,
 - Replacement of jets with turboprop or regional jet aircraft in short haul markets,
 - Abandonment/Reduction of 19-seat aircraft, and
 - Acquisition of whole or part of code-sharing partners.

Widespread adoption of these strategies has intensified their impact on air service within the U.S.

- ❑ Technological advances including computer reservation systems, yield management, and e-commerce – The use of computers has had a profound impact on the air carrier industry from the standpoint of operations, marketing, pricing, and ticket distribution. One of the most significant changes has been the ability of airlines to implement Yield Management Systems that allow them to constantly track prices, bookings, and fare information for many airlines. These systems allow airlines to have up-to-the-minute information about passenger demand and fares, which allows their pricing departments to

constantly adjust fares, frequently over one million times per day, to adjust the number of seats and airfares to maximize load factors and revenues. In addition, the recent growth in the use of electronic and paperless tickets and the direct purchase of tickets from the airlines, as opposed to the traditional travel agent process, has also significantly impacted the industry.

ANTICIPATED FUTURE COMMERCIAL TRENDS

The preceding descriptions of historic commercial airline trends are the background from which the Federal Aviation Administration (FAA) has developed forecasts of future levels of commercial passenger activity. The most recent forecasts of commercial passenger activity presented by the FAA in *FAA Aerospace Forecasts, Fiscal Years 2000-2011* reflect anticipated strong growth over the study period in both domestic and international passenger activity at U.S. airports. The following paragraphs summarize the FAA's forecasts of future commercial airline passenger activity.

Based on the FAA's forecast of continued, yet slowing, economic expansion in the U.S. over the forecast period, commercial passenger enplanements in the U.S. are anticipated to experience sustained growth throughout the forecast period. The FAA projects that total domestic passenger enplanements will increase from approximately 611.2 million in 1999 to approximately 944.7 million in 2011, representing an average annual growth rate of approximately 3.6 percent.

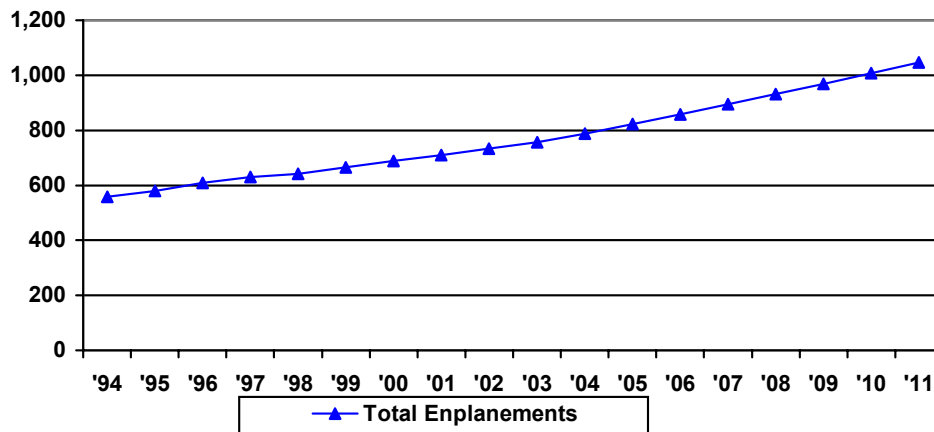
FAA forecasts of international passenger activity are based on the assumption that the world economy (based on international GDPs) will grow at a pace that exceeds the U.S. GDP growth over the forecast period. Based on this assumption, international passenger enplanements are projected to increase from approximately 53.3 million in 1999 to roughly 101.7 million in 2011. This growth represents a relatively robust forecasted average annual growth rate of approximately 5.1 percent. The strongest growth in total international passenger traffic is anticipated to be experienced in the Latin American markets and Pacific markets, forecasted to grow at average annual rates of approximately 6.1 percent and 6.0 percent, respectively. Average annual growth rates in the Atlantic and Canadian markets are projected at approximately 4.3 percent and 3.6 percent, respectively.

The following table presents a summary of historic passenger enplanement levels at U.S. airports and the FAA's most recent domestic and international passenger enplanement forecasts for each year in forecast period.

| Year | Domestic Enplanements | International Enplanements | Total Enplanements |
|-----------------------------------|-----------------------|----------------------------|--------------------|
| Historical | | | |
| 1994 | 511.3 | 46.3 | 557.6 |
| 1995 | 531.1 | 48.6 | 579.7 |
| 1996 | 558.1 | 50.0 | 608.1 |
| 1997 | 578.3 | 52.3 | 630.6 |
| 1998 | 589.3 | 53.1 | 642.4 |
| 1999 | 611.2 | 53.3 | 664.5 |
| <i>Average Annual Growth Rate</i> | 3.6 % | 2.9 % | 3.6 % |
| Forecast | | | |
| 2000 | 632.5 | 55.6 | 688.1 |
| 2001 | 652.4 | 58.1 | 710.5 |
| 2002 | 672.3 | 60.9 | 733.2 |
| 2003 | 692.6 | 64.7 | 757.3 |
| 2004 | 719.6 | 68.7 | 788.3 |
| 2005 | 749.9 | 72.8 | 822.7 |
| 2006 | 781.3 | 76.9 | 858.2 |
| 2007 | 812.5 | 81.2 | 893.7 |
| 2008 | 844.8 | 86.0 | 930.8 |
| 2009 | 877.4 | 91.0 | 968.4 |
| 2010 | 910.4 | 96.2 | 1,006.6 |
| 2011 | 944.7 | 101.7 | 1,046.4 |
| <i>Average Annual Growth Rate</i> | 3.6 % | 5.5 % | 3.9 % |

Source: FAA Aerospace Forecasts, Fiscal Years 2000 - 2011

Domestic and international passenger enplanement data presented in the previous table is depicted in the following graph.



Source: FAA Aerospace Forecasts, Fiscal Years 2000 - 2011

In summary, current FAA forecasts for commercial passenger activity in the U.S. project stable and relatively strong growth in both domestic and international enplanements at U.S. airports. Domestic passenger enplanements are projected to increase at an average annual rate of approximately 3.6 percent from 1999 to 2011, the same growth rate experienced at U.S. airports between 1994 and 1999. International passenger enplanements are projected to increase at an average annual rate of approximately 5.5 percent over the forecast period, a rate significantly greater than the 2.9 percent average annual growth rate experienced in this category of enplanements between 1994 and 1999.

The FAA also forecasts other factors related to commercial passenger activity. According to *FAA Aerospace Forecasts, Fiscal Years 2000-2011*, between 1999 and 2011 air carrier aircraft operations are projected to increase from 14.6 million to 20.4 million; average passenger trip length is expected to increase from 821.1 to 872.1 miles; average seats per aircraft departure will increase from 141.3 to 148.7; and the average load factor is expected to increase from 69.8 percent to 70.0 percent.

In terms of regional/commuter carriers, the FAA forecasts that aircraft operations will increase from 10.6 million to 14.4 million between 1999 and 2011; average passenger trip length is expected to increase from 260.2 to 324.1 miles; average seats per aircraft departure will increase from 36.0 to 44.3; and the average load factor is expected to increase from 57.6 percent to 61.6 percent.

TRENDS AFFECTING GENERAL AVIATION AIRPORTS

General aviation aircraft are all aircraft that are not flown by airlines or the military; this class of aircraft operates at each Nebraska airport. Following a decline that lasted throughout most of the 1980s and into the mid-1990s, the general aviation industry and general aviation activity appear to be revitalized. Prior to 1994, declines in the number of manufacturers and shipments of single-engine aircraft continued to indicate a sagging general aviation industry. Other indicators such as active aircraft, hours flown, and active pilots, all of which are important indicators of the overall health of the general aviation industry, also declined annually during that time period. The impact of this downturn was the decline in production of new aircraft from almost 18,000 aircraft in 1978 to a low of 928 aircraft in 1994. This decline in the production of new aircraft resulted in the loss of approximately 100,000 jobs in the industry. The enactment of the General Aviation Revitalization Act of 1994, which established an 18-year Statute of Repose on all general aviation aircraft and components, in terms of liability to the manufacturer, signaled a significant change in the industry. This Act spurred manufacturers such as Cessna and Piper Aircraft to reenter the single-engine piston manufacturing sector. In January 1997, Cessna produced its first new single-engine aircraft since 1986. Lancer International, Diamond Aircraft, and Mooney are also producing new piston aircraft domestically. On the downside, the Act has spurred a shift in liability from the manufacturers to fixed-base operators.

The positive impacts that the Act has had on the general aviation industry since its passage are currently reflected in general aviation activity statistics. Since 1994, activity statistics indicate an increase in general aviation activity at FAA air traffic facilities, an increase in the active general aviation aircraft fleet size, and record shipments and billings of fixed-wing general aviation aircraft. These recent positive trends in the general aviation industry are anticipated to continue into the future due to a number of factors including the following:

- ❑ Construction of new aircraft manufacturing facilities
- ❑ Expansion of existing manufacturing facilities
- ❑ Increased expenditures on research and development of aircraft and avionics intended to make flying even safer and easier to learn

In addition, the general aviation industry is giving increased attention to “learn to fly” educational and promotional activities that should bring new pilots and aircraft mechanics into the industry.

Specific trends related to general aviation activity, as identified in the *FAA Aerospace Forecasts, Fiscal Years 2000-2011* developed by the U.S. Department of Transportation and other national groups, are identified in following sections. These anticipated future trends are discussed in terms of the number of aircraft shipments and billings, active aircraft and pilots, changes in the active aircraft fleet mix, and business use of general aviation aircraft.

Aircraft Shipments and Billings

The General Aviation Manufacturers Association (GAMA) tracks and reports total shipments and billings of general aviation aircraft. GAMA statistics for 1999 indicate continued strong growth in the sales of general aviation aircraft, both piston and turbojet. During 1999, general aviation aircraft shipments totaled 2,504 aircraft, an increase of approximately of 12.8 percent over 1998. This represents the fifth consecutive year of increased demand for general aviation aircraft. Statistics also indicate that growth in turboprop and jet aircraft shipments are outpacing other sectors of the general aviation aircraft market. A number of factors contribute to this increase in general aviation aircraft shipments, including the production of new aircraft such as the Boeing Business Jet, the general strength of the U.S. economy, increases in the number of fractional ownership arrangements, and increases in the number of traditional corporate flight departments among U.S. businesses.

In addition, GAMA tracks total billings of general aviation aircraft, for both domestic and international customers. During 1999, aircraft billings totaled over \$7.8 billion, an increase of approximately 34 percent over total billings in 1998. Included in this increase is a strong growth experienced in international billings. Currently, international general aviation shipments and billings represent over 20 percent of the U.S. manufactured aircraft.

The following table presents total general aviation aircraft shipments and billings, on an annual basis, over the time period 1990 through 1999.

| Year | Total General Aviation Aircraft Shipments | Total General Aviation Aircraft Billings (\$ millions) |
|------|---|--|
| 1990 | 1,144 | 2,007.5 |
| 1991 | 1,021 | 1,968.3 |
| 1992 | 941 | 1,839.6 |
| 1993 | 964 | 2,143.8 |
| 1994 | 928 | 2,357.1 |
| 1995 | 1,077 | 2,841.9 |
| 1996 | 1,130 | 3,126.5 |
| 1997 | 1,569 | 4,674.3 |
| 1998 | 2,200 | 5,873.9 |
| 1999 | 2,504 | 7,843.6 |

Source: GAMA

The statistics presented by GAMA illustrate the continued strength of the general aviation aircraft manufacturing industry. In addition to the significant increases in total shipments and billings of general aviation aircraft, it is important to note that the strongest growth appears to be occurring in the jet and turbo-prop segments of the market. The growth in these segments can be attributed to increased business use of aircraft and their desire to operate safe, efficient, and high-performance aircraft. These high-performance

aircraft require airport facilities to be developed to a relatively higher and more demanding standard, a factor that will be considered as system development plans are identified in this analysis.

Active Pilots

In 1999, the four major segments of the pilot population (student pilots, private pilots, commercial pilots, and airline transport pilots) each experienced growth. As a result, the total number of active pilots increased to approximately 640,110 pilots in 1999, an increase of almost 22,000 pilots compared to 1998. One of the strongest growth rates was experienced in the student pilot population, which increased by approximately 4.4 percent. These students represent the future of general aviation and are not only learning to fly for recreational reasons, but also because of career opportunities created by the needs of air carriers, fractional ownership providers, and corporate flight departments. Also worthy of noting is the 2.9 percent growth rate experienced in instrument-rated pilots in 1999. Currently, approximately 57.5 percent of the total active pilot population is instrument-rated, another reflection of the increased sophistication of aircraft and pilot.

The FAA has developed forecasts of the future pilot population, by certificate type, based on historic trends as well as anticipated future trends. These projections estimate that the total active pilot population in the U.S. will increase from 640,113 in 1999 to 824,490 by 2011, representing an average annual growth rate of approximately 2.1 percent.

The following table presents the FAA forecasts of the active pilot population, by pilot certificate type, on an annual basis over the forecast period.

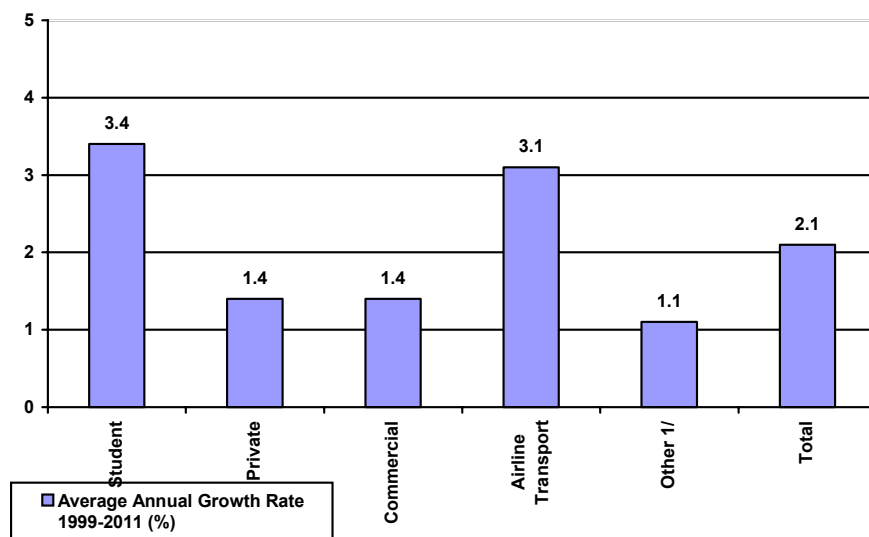
As shown in the table, the student and airline transport category of pilots is anticipated to experience the strongest growth over the 12-year forecast period, experiencing average annual growth rates of 3.4 percent and 3.1 percent, respectively. The populations of both private and commercial pilots are anticipated to increase at an average annual rate of 1.4 percent over the forecast period.

| Year | Student | Private | Commercial | Airline Transport | Other 1/ | Total |
|-------------------------------------|---------|---------|------------|----------------------|----------|---------|
| Historical | | | | | | |
| 1994 | 96,254 | 284,236 | 138,728 | 117,434 | 17,436 | 654,088 |
| 1995 | 101,279 | 261,399 | 133,980 | 123,877 | 18,649 | 639,184 |
| 1996 | 94,947 | 254,002 | 129,187 | 127,486 | 16,639 | 622,261 |
| 1997 | 96,101 | 247,604 | 125,300 | 130,858 | 16,479 | 616,342 |
| 1998 | 97,736 | 247,226 | 122,053 | 134,612 | 16,671 | 618,298 |
| 1999 | 102,000 | 258,749 | 124,261 | 137,642 | 17,461 | 640,113 |
| Average Annual Growth Rate | 1.2 % | -1.9 % | -2.2 % | 3.2 % | .03 % | -0.4 % |
| Forecast | | | | | | |
| 2000 | 106,100 | 260,700 | 126,200 | 139,700 | 17,696 | 650,396 |
| 2001 | 110,300 | 267,400 | 128,400 | 144,400 | 17,936 | 668,436 |
| 2002 | 114,700 | 272,000 | 130,600 | 149,500 | 18,140 | 684,940 |
| 2003 | 119,300 | 277,500 | 133,300 | 154,400 | 18,345 | 702,845 |
| 2004 | 124,000 | 283,700 | 136,300 | 159,300 | 18,544 | 721,844 |
| 2005 | 128,300 | 288,000 | 138,300 | 164,000 | 18,744 | 737,344 |
| 2006 | 132,700 | 291,400 | 139,900 | 169,300 | 18,943 | 752,243 |
| 2007 | 137,000 | 294,600 | 141,500 | 174,400 | 19,137 | 766,637 |
| 2008 | 141,000 | 297,600 | 142,900 | 180,000 | 19,347 | 780,847 |
| 2009 | 145,000 | 300,600 | 144,300 | 186,000 | 19,561 | 795,461 |
| 2010 | 148,800 | 303,600 | 145,800 | 192,000 | 19,771 | 809,971 |
| 2011 | 152,500 | 306,600 | 147,300 | 198,100 | 19,990 | 824,490 |
| Average Annual Growth Rate | 3.4 % | 1.4 % | 1.4 % | 3.1 % | 1.1 % | 2.1 % |

1/ Other pilot category includes pilots with recreational, rotorcraft only, and glider only certificates.

Sources: FAA U.S. Civil Airmen Statistics, FAA Aerospace Forecasts, Fiscal Years 2000 - 2011

The following graph compares the average annual growth rate projected for each pilot type during the study period 1999 to 2011.



1/ Includes aircraft classified by FAA as experimental and other.

Source: FAA Aerospace Forecasts, Fiscal Years 2000 - 2011

The data presented above show relatively strong growth, ranging from an average annual rate of 1.4 percent in the private and commercial pilot categories to an average annual rate of 3.4 percent in the student pilot category. The strong growth anticipated in the student pilot category is important to note because of the potential impacts that this growing number of pilots may have on all components of general aviation activity in the future. Student pilots, in most cases, will graduate to become active private, commercial, and/or airline transport pilots, which in turn may impact overall active aircraft fleet and general aviation activity statistics.

Aircraft Fleet

The FAA annually tracks the number of active aircraft in the U.S. Active aircraft are those aircraft that are currently registered and fly at least one hour during the year. By tracking this information, the FAA is able to identify trends in the total number of active aircraft, as well as the types of aircraft operating in the active fleet. Based on FAA estimates, the active general aviation aircraft fleet is anticipated to increase from 206,530 aircraft in 1999 to 230,995 in 2011, representing an average annual growth rate of approximately 0.9 percent. FAA forecasts for the total active aircraft fleet, as well as each major type of aircraft, are summarized in the following table.

| Aircraft Type | 1999 | 2011 | Average Annual Growth Rate |
|----------------------|----------------|----------------|-----------------------------------|
| Single-engine piston | 145,250 | 158,400 | 0.7 % |
| Multi engine piston | 18,750 | 18,750 | 0.0 % |
| Turboprop | 6,250 | 7,240 | 1.2 % |
| Jet | 6,400 | 11,295 | 4.8 % |
| Rotorcraft | 7,590 | 9,040 | 1.5 % |
| <u>Other 1/</u> | <u>22,290</u> | <u>26,270</u> | <u>1.4 %</u> |
| <i>TOTAL</i> | 206,530 | 230,995 | 0.9 % |

1/ Includes aircraft classified by FAA as experimental and other.

Source: FAA Aerospace Forecasts, Fiscal Years 2000 – 2011

As shown in the preceding table, the total active aircraft fleet is forecasted to experience an average annual growth rate of less than 1 percent. One of the most important trends identified in these forecasts is the relatively strong growth anticipated in active jet and turboprop aircraft. This trend illustrates a movement in the general aviation community towards higher-performing, more demanding aircraft. This trend will impact the types of activities occurring at general aviation airports and the types of facilities that may be required at those airports.

The following table presents FAA forecasts of active aircraft, by aircraft type, on an annual basis through the forecast period.

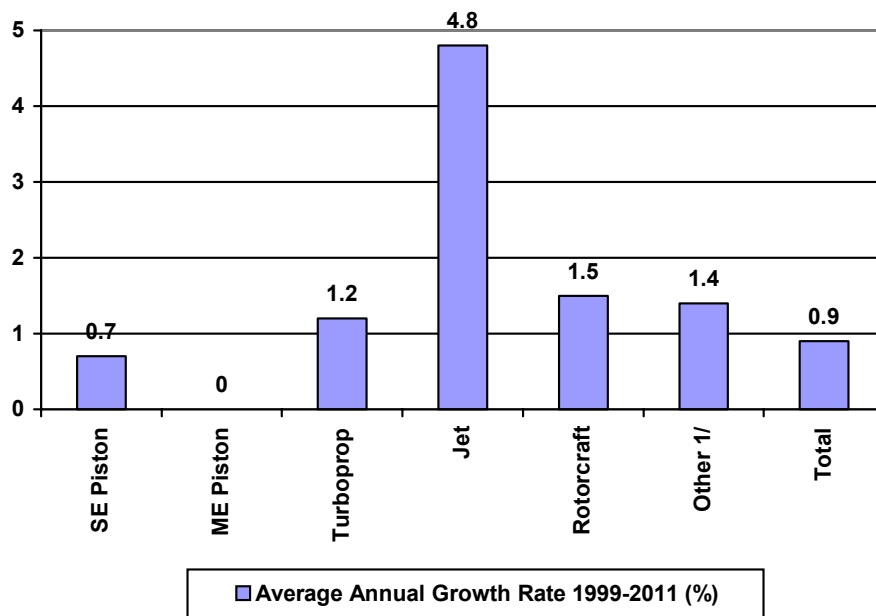
| Year | SE Piston | ME Piston | Turboprop | Turbo Jet | Rotor Craft 1/ | Other 2/ | Total |
|-------------------------------------|--------------|--------------|-----------|--------------|----------------------|-------------|---------|
| Historical | | | | | | | |
| 1994 | 127,351 | 14,801 | 4,092 | 3,914 | 4,728 | 18,050 | 172,936 |
| 1995 | 137,049 | 15,739 | 4,995 | 4,559 | 5,830 | 19,917 | 188,089 |
| 1996 | 137,401 | 16,150 | 5,716 | 4,424 | 6,570 | 20,869 | 191,129 |
| 1997 | 140,038 | 16,017 | 5,619 | 5,178 | 6,785 | 18,772 | 192,414 |
| 1998 | 144,234 | 18,729 | 6,174 | 6,066 | 7,426 | 22,082 | 204,710 |
| 1999 | 145,250 | 18,750 | 6,250 | 6,400 | 7,590 | 22,290 | 206,530 |
| Average Annual Growth Rate | 2.7 % | 4.8 % | 8.8 % | 10.3 % | 9.9 % | 4.3 % | 3.6 % |
| Forecast | | | | | | | |
| 2000 | 146,400 | 18,750 | 6,340 | 6,820 | 7,745 | 22,600 | 208,655 |
| 2001 | 147,600 | 18,750 | 6,430 | 7,240 | 7,895 | 22,910 | 210,825 |
| 2002 | 148,800 | 18,750 | 6,520 | 7,660 | 8,010 | 23,230 | 212,970 |
| 2003 | 150,000 | 18,750 | 6,610 | 8,080 | 8,135 | 23,550 | 215,125 |
| 2004 | 151,200 | 18,750 | 6,700 | 8,500 | 8,240 | 23,880 | 217,270 |
| 2005 | 152,400 | 18,750 | 6,790 | 8,910 | 8,355 | 24,210 | 219,415 |
| 2006 | 153,400 | 18,750 | 6,870 | 9,320 | 8,465 | 24,540 | 221,345 |
| 2007 | 154,400 | 18,750 | 6,950 | 9,725 | 8,575 | 24,880 | 223,280 |
| 2008 | 155,400 | 18,750 | 7,030 | 10,125 | 8,690 | 25,220 | 225,215 |
| 2009 | 156,400 | 18,750 | 7,100 | 10,520 | 8,805 | 25,570 | 227,145 |
| 2010 | 157,400 | 18,750 | 7,170 | 10,910 | 8,920 | 25,920 | 229,070 |
| 2011 | 158,400 | 18,750 | 7,240 | 11,295 | 9,040 | 26,270 | 230,995 |
| Average Annual Growth Rate | 0.7 % | 0 % | 1.2 % | 4.8 % | 1.5 % | 1.4 % | 0.9 % |

1/ Includes both piston and turbine rotorcraft.

2/ Includes aircraft classified by FAA as experimental and other.

Source: FAA Aerospace Forecasts, Fiscal Years 2000 – 2011

The following graph compares the projected average annual growth rate for each type of aircraft in the fleet mix over the period 1999 through 2011.



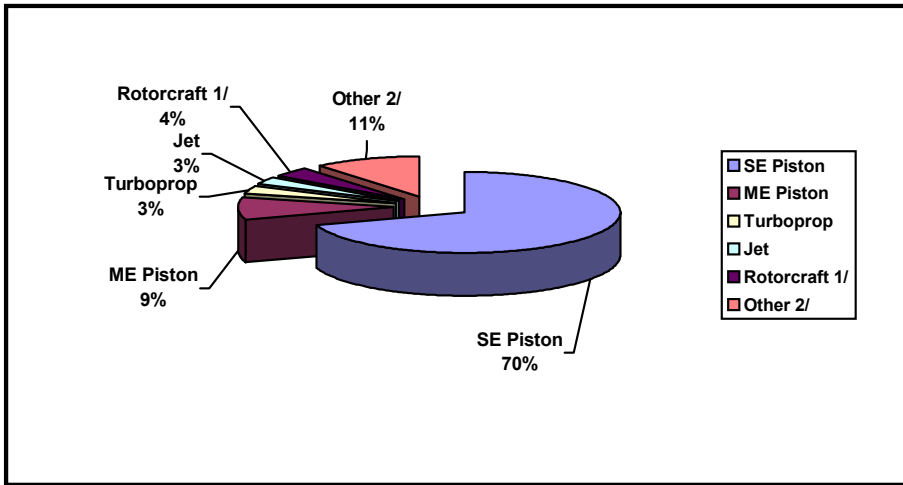
1/ Includes aircraft classified by FAA as experimental and other.

Source: FAA Aerospace Forecasts, Fiscal Years 2000 – 2011

The above graph illustrates the extent to which the growth in jet aircraft is projected to significantly outpace growth in all other components of the aircraft fleet. As shown, turboprop, rotorcraft, and other aircraft are projected to experience an average annual growth rate of over 1 percent per year over the forecast period, while the number of active multi-engine piston aircraft is anticipated to remain stable over the forecast period.

It is also useful to examine the existing and anticipated active aircraft fleet in terms of the percentage of the total fleet that each aircraft class represents. The following pie charts examine the existing mix of the 1999 active fleet, and the anticipated mix projected for the fleet of 2011.

The following graph summarizes the 1999 active aircraft fleet mix.



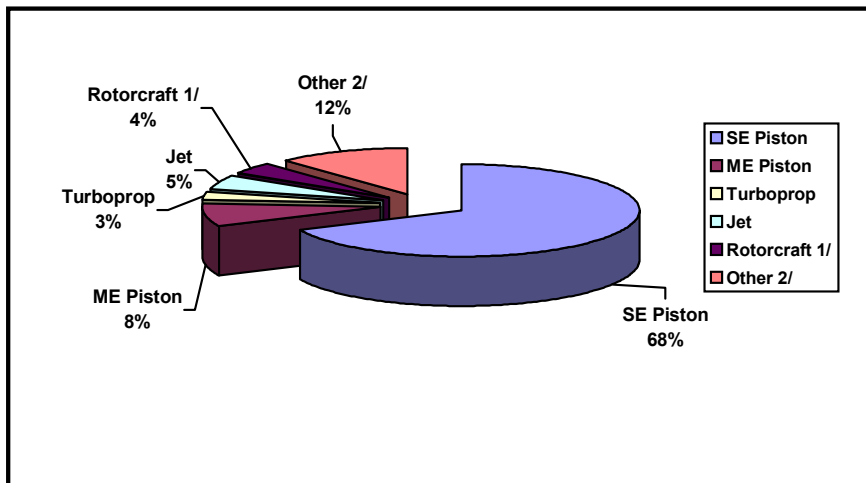
1/ Includes both piston and turbine rotorcraft.

2/ Includes both gliders and lighter-than-air aircraft.

Source: FAA Aerospace Forecasts, Fiscal Years 2000 – 2011

As shown in the graph, the majority of the active aircraft in the current fleet are single-engine piston aircraft. The following graph depicts the anticipated future active fleet mix for 2011. As shown in the following graph, it is anticipated that the percentage of single-engine piston aircraft will decline as older aircraft are retired and replaced with more demanding general aviation aircraft.

The following graph summarizes the anticipated aircraft fleet mix for 2011.



1/ Includes both piston and turbine rotorcraft.

2/ Includes both gliders and lighter-than-air aircraft.

Source: FAA Aerospace Forecasts, Fiscal Years 2000 – 2011

Forecast data presented by the FAA indicates that each component of the general aviation aircraft fleet mix will either remain steady (multi-engine piston) or grow in terms of total number of active aircraft. Data depicted in the pie charts presented above indicates that jet and other aircraft will be the only components of the general aviation aircraft fleet mix that will see their share of the active fleet grow over the forecast period. Jet aircraft are anticipated to grow from approximately 3 percent of the active general aviation fleet mix in 1998 to approximately 5 percent of the active fleet by 2011, indicating the relative increase in sophistication that is anticipated in the active aircraft fleet and pilot population. The “other” category of aircraft is also forecast to become a larger component of the active fleet, primarily because of growth in experimental aircraft, growing from approximately 11 percent of the fleet to 12 percent of the fleet by 2011.

Current and/or forecasted trends affecting general aviation can be summarized as follows:

- ❑ Recent and continued increases in the number of annual general aviation aircraft shipments
- ❑ Growth in the number of licensed pilots augmented by a relatively strong growth in the number of student pilots
- ❑ Moderate growth in the active aircraft fleet and a trend towards the operation of more demanding and more sophisticated jet aircraft as opposed to piston or turbo-prop aircraft

Comment:

Business Use of General Aviation Aircraft

Many businesses throughout the U.S. depend on scheduled commercial service airlines, as well as general aviation aircraft, to add to their productivity and efficiency. Nebraska's airports are essential to economic progress of the citizens and businesses of Nebraska. Without these airports, the State would be severely hampered in its ability to participate in an increasingly global community and marketplace. Air transportation makes possible the quick movement of millions of people and billions of dollars worth of goods to markets around the world. Nebraska needs to be able to compete in those markets, and there is often no practical alternative to air transportation. Similarly, the growth of a competitive domestic economy depends more and more on our ability to move by air.

A major benefit of Nebraska's airports is the State's ability to use air transportation to support its competitive advantage in a global economy. Today's economy can present commercial opportunities at any time and in any place. To remain competitive and take advantage of those opportunities, the businesses of Nebraska must be able to move people and products anywhere in the world safely, quickly, and conveniently. Air transportation is the preeminent means for commerce and communication among people, with long-range jet aircraft providing nonstop air service to major cities. In addition to the use of scheduled commercial airline services, more and more businesses throughout the nation are looking to general aviation aircraft, and the flexibility and efficiency that they provide, to support their domestic and international business operations.

Many of the nation's leading employers that use general aviation as a business tool are members of the National Business Aircraft Association (NBAA). Data from NBAA shows that many of the top U.S. businesses use general aviation aircraft. The NBAA's *Business Aviation Fact Book 2000* indicates that approximately 70 percent of all businesses included in the *Fortune 500* operate general aviation aircraft. In addition, 90 of the *Fortune 100* companies operate general aviation aircraft. A detailed analysis conducted for NBAA in 1998 also indicated that, among the *Fortune 500*, there were more than twice as many companies operating general aviation aircraft as nonoperators.

Business use of general aviation aircraft can range from the rental of small single-engine aircraft to multiple aircraft corporate fleets that are supported by dedicated flight crews and mechanics. The use of general

aviation aircraft allows employers to efficiently transport priority personnel and air cargo. Businesses use general aviation aircraft to link multiple office locations and to reach existing and potential customers. The use of business aircraft by smaller companies has escalated as various chartering, leasing, time-sharing, interchange agreements, partnerships, and management contracts have emerged. NBAA statistics support this claim by indicating that the number of flight departments among all the nation's businesses had increased from 6,584 in 1991 to 8,778 in 1999, an increase of approximately 33 percent. Fractional ownership arrangements have also experienced a recent trend of rapid growth. In 1998, NBAA estimated that 1,125 companies used fractional ownership arrangements; by 1999, that number had grown to 1,693 companies, a growth of over 50 percent in a single year.

Regardless of how the aircraft are owned or what type of aircraft is flown, businesses choose to use general aviation because it provides safe, efficient, flexible, and reliable transportation. Of all the benefits provided to business by general aviation, flexibility is the most valued by all businesses using general aviation aircraft. While there are many reasons that businesses use general aviation in their day-to-day operation, some of the most important factors, according to the businesses themselves, are as follows:

- ❑ Flexibility
- ❑ Time Savings
- ❑ Reliability
- ❑ Safety
- ❑ Improved Marketing Efficiency
- ❑ Facility/Branch Office Control
- ❑ Personnel Development Training
- ❑ Privacy and Comfort
- ❑ Efficiency
- ❑ Security

One other benefit that is becoming increasingly important to both employees and employers using general aviation aircraft for business travel is that it minimizes non-business hours away from home. Using business aircraft increases the flexibility of scheduling and provides rapid, safe, and efficient access to meeting locations. These factors allow employees using general aviation aircraft to travel to and from their destination in less time than would be required in a traditional commercial service airline schedule that includes layovers, delays, and other time-consuming events. The positive effect that minimizing non-business time away from home has on employee morale and productivity is impossible to measure, yet growing in importance.

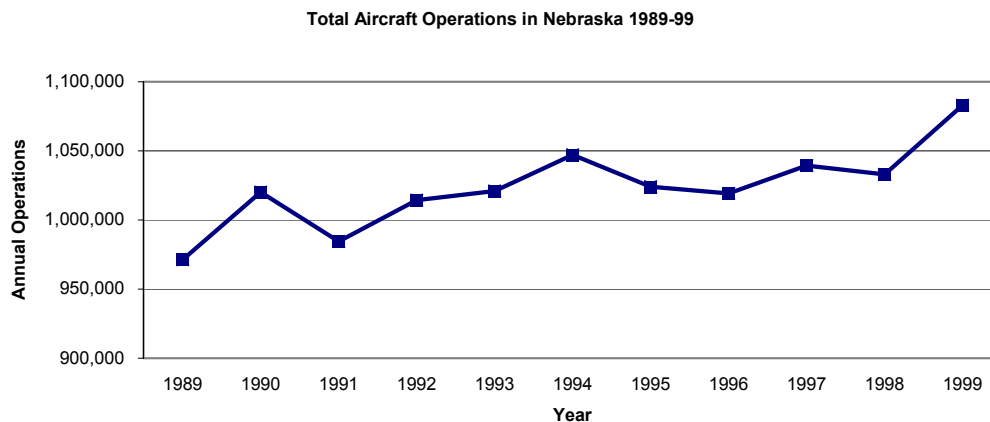
The use of general aviation as a business tool adds to productivity and to the bottom line. According to an NBAA survey of key *Forbes* and *Fortune 500* companies, those businesses that use general aviation aircraft significantly outperform, on a routine basis, those businesses that do not use general aviation aircraft. Performance indicators such as annual sales, number of employees, value of assets, and annual income are significantly higher for employers using general aviation aircraft.

NEBRASKA AVIATION TRENDS

Presentation of the national trends is important to understanding how Nebraska's aviation activity might be expected to change. For this study, trends in Nebraska's total annual aircraft operations, total annual based aircraft, and total annual enplanements were reviewed.

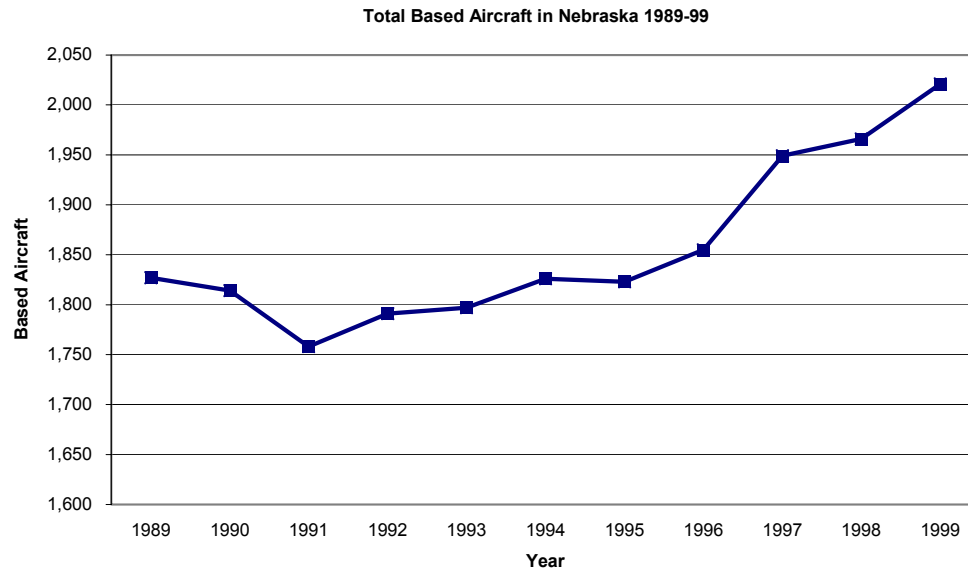
TOTAL AIRCRAFT OPERATIONS

Total aircraft operations at public use airports in Nebraska were approximately 971,000 in 1989. Over the 10-year period, total aircraft operations in the State have grown to over 1 million, an overall increase of 10 percent. On an average annual basis, total aircraft operations have grown at a rate of approximately 1.0 percent. Comparatively, general aviation operations recorded by the FAA at towered airports grew at an average annual rate of 2.0 percent between 1994 and 1999. The FAA projects that general aviation activity at towered airports will increase at an average annual rate of 1.7 percent over the 1999 to 2011 period.



TOTAL BASED AIRCRAFT

Total based aircraft at Nebraska public use airports were approximately 1,800 in 1989. Over the 10-year period, total based aircraft in the State have grown to over 2,000, an overall increase of 10 percent. On an average annual basis, total based aircraft have grown at a rate of approximately 0.9 percent. While the FAA does not track based aircraft, they do track active aircraft through a survey titled “General Aviation and Air Taxi Activity Survey.” The results of the survey show that the active fleet has increased for four consecutive years, with an overall increase of over 18 percent. The average annual rate for the most recent period that the survey has been conducted shows an average annual growth of 2.9 percent. The FAA projects that active general aviation aircraft will increase at an average annual rate of 0.9 percent over the 1999 to 2011 period. This is the same rate at which Nebraska’s total based aircraft have grown in the most recent 10-year period.



TOTAL ENPLANEMENTS

Enplanements are recorded at 10 commercial service airports in Nebraska. These 10 airports serve the following communities:

- ☐ Alliance
- ☐ Chadron
- ☐ Grand Island
- ☐ Kearney
- ☐ Lincoln
- ☐ McCook
- ☐ Norfolk
- ☐ North Platte
- ☐ Omaha
- ☐ Scottsbluff

Total enplanements at the 10 commercial service airports have grown from nearly 1.4 million in 1989 to over 2.2 million in 1999. This represents a total growth of over 37 percent over the 10-year period. On an average annual basis, Nebraska's enplanements have grown, on average, nearly 4.3 percent a year. Domestic enplanements reported by the FAA for domestic air carriers, including regional/commuter and major/national air carriers, grew at an average annual rate of 3.6 percent between 1994 and 1999. The FAA projects that domestic enplanements will increase at an average annual rate of 3.7 percent over the 1999 to 2011 period.

